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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,519	09/28/2006	Jean-Marc Suau	296733US0PCT	1808

22850 7590 11/16/2009
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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11/16/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/594,519	Applicant(s) SUAU ET AL.	
	Examiner MICHAEL M. BERNSHTEYN	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 15-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-59 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/19/07, 12/28/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election with traverse of claims 1-14 in the reply filed on August 10, 2009 is acknowledged. The traversal is on the ground(s) that that the Office has not considered the relationship of the inventions of Groups I-III with respect to 37 C.F.R. § 1.475(b)(2) and MPEP §806.03. Therefore the burden necessary according to MPEP § 1893.03(d) to sustain the conclusion that the groups lack of unity of invention has not been met. Accordingly, Applicants submit that the Office has failed to meet the burden necessary in order to sustain the requirement for restriction (page 3). This is not found persuasive because all these inventions listed in this action are independent or distinct for the reasons mentioned in Office action dated on July 9, 2009, and there would be a serious search and examination burden if restriction were not required.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-14 are active.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 10 recite "gel permeation chromatographic (GPC) method, having as a standard a series of 5 sodium polyacrylate standards supplied by Polymer Standard Service as references PAA 18K, PAA 8K, PAA 5K, PAA 4K and PAA 3K".

This terminology is indefinite because the specification does not clearly define used abbreviations.

4. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 10 recites the broad recitation of the range for the average molecular mass and the claim also recites preferential, very preferential and an extremely preferential ranges of the average molecular mass which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Suau et al. (WO 2004/014967 or U. S. Patent 7,462,676). The U.S. Patent 7,462,676 is equivalent to the WO 2004/014967; therefore, the following rejection is based upon the context of U.S. Patent 7,462,676.

With regard to the limitations of instant claims 1-14, Suau discloses homopolymers and copolymers of acrylic acid obtained by a process for controlled radical polymerization of acrylic acid and its salts in a reactive medium constituted solely of water, and the use of the said homopolymers and copolymers of acrylic acid in

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fields of industry such as the paper field and in particular the coating of paper and the mass-filling of paper, the oil field, or the fields of paint, water treatment, detergency, ceramics, cements or hydraulic binders, public works, inks and varnishes, sizing of textiles or the finishing of leather (abstract).

Suau discloses that the homopolymers and copolymers of acrylic acid with hydrosoluble monomers have an average molecular mass by weight (Mw) of between 1000 g/mole and 60,000 g/mole, and more particularly between 4500 g/mole and 8000 g/mole, with a polymolecularity index of less than or equal to 2 for a conversion rate relative to acrylic acid higher than 90% (col. 5, lines 1-8). All these values are within the claimed ranges.

Suau discloses that when the process according to the invention consists of a controlled radical copolymerisation, in batch or semi-batch mode, of acrylic acid with at least one **hydrosoluble** ethylenically unsaturated monomer, or one of which the copolymer is hydrosoluble, the hydrosoluble ethylenically unsaturated monomer or monomers, or ones of which the copolymer is hydrosoluble, are chosen from among methacrylic acid, itaconic acid, maleic, 2-acrylamido-2-methyl-1-propane sulphonic acid in acid form or partially neutralised, 2-methacrylamido-2-methyl-1-propane sulphonic acid in acid form or partially neutralised, etc. (col. 3, line 40 through col. 4, line 3).

These homopolymers and/or copolymers are either in their acid form, i.e. non-neutralised, or partially or totally neutralised by one or more monovalent, divalent, trivalent **neutralization agents**, or neutralization agents with higher valencies, or mixtures thereof. Monovalent neutralisation agents are chosen from the group

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constituted by the compounds containing alkaline cations, particularly sodium and potassium, or again lithium, ammonium, or again the aliphatic and/or cyclic primary or secondary amines such as, for example, the ethanolamines, mono- and diethylamine or cyclohexylamine. Monovalent neutralization agents are chosen from the group constituted by the compounds containing alkaline cations, particularly sodium and potassium, or again lithium, ammonium, or again the aliphatic and/or cyclic primary or secondary amines such as, for example, the ethanolamines, mono- and diethylamine or cyclohexylamine (col. 5, lines 30-47).

Suau discloses that the process is characterised in that the hydrosoluble transfer agent is an α -substitute β -carboxylate xanthate salt. In an even more particular manner, the hydrosoluble transfer agent is an α -substitute β -carboxylate sodium xanthate, and completely preferably the α -substitute β -carboxylate sodium xanthate according to the invention is an α -methyl β -carboxylate sodium xanthate (col. 4, lines 4-11).

With regard to the limitations of instant claim 1, Suau does not disclose that homopolymers of acrylic acid and/or copolymers of acrylic acid with hydrosoluble monomer contain at the end of the chain a pattern in accordance with the formula (I).

However, in view of substantially identical composition between Suau and instantly claimed homopolymers of acrylic acid and/or copolymers of acrylic acid with hydrosoluble monomer (exactly the same polymerized monomers, initiators, analogous chain transfer agent, an average molecular mass and polydispersity of the final copolymers being obtained by the same method of polymerization), it is the examiner position that Suau's acrylic composition possesses this property. Since the USPTO

does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. **In re Best** 195 USPQ 430, (CCPA 1977).

An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.” **In re Payne**, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 979). See **In re Papesch**, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (discussed in more detail below) and **In re Dillon**, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991) (discussed below and in MPEP § 2144) for an extensive review of the case law pertaining to obviousness based on close structural similarity of chemical compounds. See also MPEP § 2144.08, paragraph II.A.4.(c).

6. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Chiefari et al. (WO 99/31144 or U. S. Patent 6,642,318). The U.S. Patent 6,642,318 is equivalent to the WO 99/31144; therefore, the following rejection is based upon the context of U.S. Patent 6,642,318.

With regard to the limitations of instant claims 1-14, Chiefari discloses homopolymers of acrylic acid and/or copolymers of acrylic acid with hydrosoluble monomer obtained by a free radical polymerization process for synthesizing polymers. The process utilizes sulfur based chain transfer agents and is widely compatible over a range of monomers and reaction conditions. The process produces novel polymers having low polydispersity and predictable specific polymer architecture and molecular

weight. The polymers are suitable for use as binders in automobile OEM and refinish coating (abstract).

Chiefari discloses that a monomer mix suitable for use may include at least one vinyl monomer of the formula (31) below:



where L is selected from the group consisting of hydrogen, halogen, and substituted or unsubstituted C₁-C₄ alkyl substituents being independently selected from the group consisting of OH, OR", CO₂H, O₂CR", CO₂R" and a combination thereof;

where M is selected from the group consisting of hydrogen, R", CO₂R", COR", CN, CONH₂, CONHR", CONR"₂, O₂CR", OR", and halogen.

R" is selected from the group consisting of substituted or unsubstituted alkyl, alkenyl, aryl, heterocyclyl, aralkyl, alkaryl, and a combination thereof (col. 15, line 65 through col. 16, line 17).

Depending upon the type of polymer desired, the monomer mix may also include the following monomers: maleic anhydride, N-alkylmaleimide, N-arylmaleimide, dialkyl fumarate, cyclopolymerizable or ring opening monomer, or a combination thereof. The monomer mix may also include macromonomers, which are compounds of the formula (31) where L or M is a polymer chain (col. 16, lines 20-25).

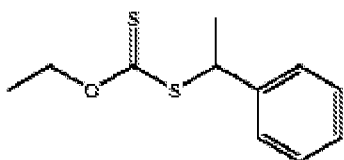
The monomers or comonomers of the formula (31) generally include one or more of acrylate and methacrylate esters, **acrylic and methacrylic acids**, styrene,

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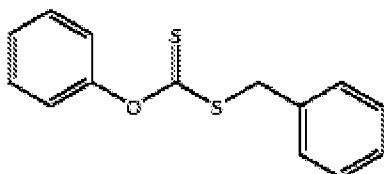
acrylamide, methacrylamide, acrylonitrile, methacrylonitrile, vinyl esters and mixtures of these monomers, and mixtures of these monomers with other monomers (col. 16, line 38 through col. 17, line 28).

Chiefari discloses a lot of chain transfer agents, which are substantially identical to the claimed invention.

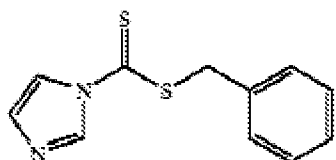
Compound C



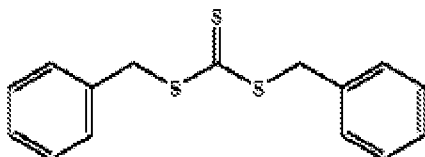
Compound F



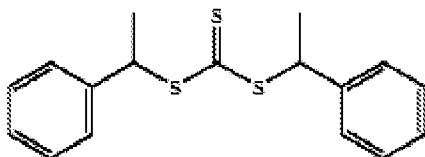
Compound M



Compound N



Compound P



Chiefari discloses that low polydispersity polymers are those with polydispersities that are significantly less than those produced by conventional free radical polymerization. In conventional free radical polymerization, polydispersities of the polymers formed are typically in the range 1.5 to 2.0 at low monomer conversions in the range of from 0.1% to 10% and are substantially greater in the range of from 2 to 10 at higher monomer conversions in the range of from 10% to 100%. Polymers having low polydispersity in the range of from 1.05 to 1.5 are preferred. Those having the polydispersity in the range of 1.05 to 1.3 are more preferred. Moreover, one of the significant advantages of the process of the present invention is that the foregoing low polydispersity can be maintained even at high monomer conversions of in the range of from 10% to 100%. All these values are within the claimed ranges (col. 19, lines 30-44).

With regard to the limitations of instant claim 1, Chiefari does not disclose that homopolymers of acrylic acid and/or copolymers of acrylic acid with hydrosoluble monomer contain at the end of the chain a pattern in accordance with the formula (I).

However, in view of substantially identical composition between Chiefari and instantly claimed homopolymers of acrylic acid and/or copolymers of acrylic acid with hydrosoluble monomer (exactly the same polymerized monomers, initiators, analogous chain transfer agent, an average molecular mass and polydispersity of the final copolymers being obtained by the same method of polymerization), it is the examiner position that Chiefari's acrylic composition possesses this property. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. ***In re Best*** 195 USPQ 430, (CCPA 1977).

An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.” **In re Payne**, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 979). See **In re Papesch**, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (discussed in more detail below) and **In re Dillon**, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991) (discussed below and in MPEP § 2144) for an extensive review of the case law pertaining to obviousness based on close structural similarity of chemical compounds. See also MPEP § 2144.08, paragraph II.A.4.(c).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/
Examiner, Art Unit 1796

/M. M. B./
Examiner, Art Unit 1796